

### **REMARKS**

Prior to this Reply, claims 1-11 were pending. By the above amendments, claim 1 is amended, claim 10 is cancelled, claim 11 is amended, and new claims 23-24 are added. None of the above mentioned amendments or changes add new matter because they are supported by the specification and drawings as originally filed. Reconsideration of this Application is respectfully requested.

Per the November 9, 2000 Office Action, Claims 1-11 stand rejected by the Examiner under 35 U.S.C. 102(a) as being anticipated by PCT No. WO98/29879 to Kojima et al. (hereafter "Kojima"). Claims 1-4 and 7-11 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,493,266 to Sasaki et al. (hereafter "Sasaki") Finally, claims 4-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Sasaki in view of U.S. Patent No. 6,020,808 to Hogge (hereafter Hogge).

By way of this Reply, claim 1 and 11 have been amended, claim 10 has been cancelled and new claims 23 and 24 have been added. Therefore, claims 1-9, 11, and 23-24 are currently pending.

### **Kojima Does Not Anticipate Claims 1-5, 7-9, 11 and 23-24**

To anticipate a claim under Section 102, a single source must contain all of the limitations of the claims. Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1379 (Fed. Cir. 1986). Kojima does not contain every element of claims 1-9, 11, and 23-24.

Amended claim 1 contains the limitation 'wherein an electrically insulating layer is deposited on the first and second electrodes between the first and second end terminations.' This limitation is not found in the Kojima reference for two reasons. The Examiner cites to Fig. 5 of Kojima as anticipating the Applicant's invention. In doing so, Applicant respectfully submits that Examiner has improperly read the limitations of claim 1 on the Kojima disclosure in the following manner.

Examiner reads one of the electrodes 53 as the first electrode of claim 1 and the other of the electrodes 53 as the second electrode of claim 1. The second electrode of claim 1 can not be read as one of the electrodes of Kojima designated by 53, because to do so does not satisfy other

limitations of claim 1 relating to the claimed end terminations. Rather, only one of the interior electrodes 52 may properly be read as the second electrode of claim 1.

Under the Examiner's reading of claim 1 on the Kojima disclosure, the 'first electrically conductive end termination wrapping around a first end of the device and electrically contacting the first and second electrodes' and the 'second electrically conductive end termination wrapping around a second end of the device and electrically contacting the third electrode', as required by claim 1 are not present. If the lowermost 53 electrode is read as the second electrode of claim 1, Kojima has a first electrically conductive end termination wrapping around a first end of the device and electrically contacting the first electrode and not the second electrode and a second electrically conductive end termination wrapping around a second end of the device and electrically contacting the second electrode. The only proper reading of claim 1 that satisfies the limitations of the second electrode and the first and second end terminations as originally contained in claim 1 is to interpret the uppermost 53 electrode of Fig. 5 as the first electrode of claim 1, the lowermost 52 electrode as the second electrode of claim 1, and the uppermost 52 electrode as the third electrode of claim 1.

This being the case, there is no electrically insulating layer deposited on the first and second electrodes between the first and second end terminations as claimed by amended claim 1. This is for two reasons. In the first instance, we have already established that the second electrode as claimed is only satisfied by the lowermost 52 electrode of Fig. 5 of Kojima. No electrically insulating layer is shown or otherwise disclosed being deposited on this electrode. Furthermore, no electrically insulating layer is shown deposited on the uppermost 53 electrode of Fig. 5, which we have defined as satisfying the limitations of the first electrode of claim 1. The only layer shown or otherwise disclosed as being deposited on the first electrode of Kojima (uppermost 53 electrode of Fig. 5) is an electrically *conductive* layer that forms part of the end terminations of Kojima.

Therefore, as no electrically insulating layer deposited on the first and second electrodes between the first and second end terminations, as claimed by claim 1, is contained in Kojima, Kojima fails to anticipate Applicant's claim 1. Currently pending claims 2-9 and 11 depend, either directly or indirectly, from claim 1. Therefore, as Kojima fails to anticipate claim 1 as amended, Kojima likewise fails to anticipate claims 2-9 and 11. In addition, claim 11 has an independent basis

for non-anticipation by Kojima in addition to its mere dependence from an unanticipated claim, as discussed below.

Claim 11 further limits the electrically insulating layers of claim 1. As said layers are not present in Kojima, as discussed above, nor are they present with respect to claim 11. Therefore, the additional limitations as called out by claim 11 with respect to the electrically insulating layers of claim 1 are not found in Kojima and claim 11 is not anticipated by Kojima.

New claim 23 submitted by Applicant via this Reply, is not anticipated by Kojima. Claim 23 includes the limitation of 'only a first PTC element and a second PTC element.' Nowhere does Kojima disclose limiting the device disclosed therein to only a first and second PTC element. Kojima discloses use of at least three PTC elements. The cited limitation of new claim 23 results in a simpler less complicated device than the Kojima device that performs with the same capacity and rating of the Kojima device. As the cited limitation of claim 23 is not contained within the Kojima reference, said reference does not anticipate claim 23.

New claim 24 submitted by Applicant via this Reply is also not anticipated by the Kojima reference. Said claim limits the invention to one in which the third electrode is 'further being in electrical communication with the first electrode through the first PTC element and with the second electrode through the second PTC element.' No such third electrode is disclosed or otherwise taught by Kojima. Looking at the functioning of the Kojima device as disclosed by Fig. 5, current enters the device from the left end termination and part of it travels to the lowermost 52 electrode. It travels along this electrode, down through the PTC material located between it and the lowermost 53 electrode, to the lowermost 53 electrode, to and out through the right end termination. The remainder of the current entering the device through the left end termination, flows to and across the upper most 53 electrode and down through the PTC material located between it and the upper most 52 electrode. It then flows to and through the upper most 52 electrode to the right end termination and out the device. It can be seen, therefore, from an analysis of the manner in which the Kojima device functions, that there is no 'third electrode further being in electrical communication with the first electrode through the first PTC element and with the second electrode through the second PTC element.' This limitation of claim 24 results in a smaller device in terms of PTC layers yet performs

with the same efficiency as the Kojima device with the same area of active PTC material as the Kojima device.

Accordingly Applicant submits that claim 1 is patentable over Kojima. As claims 2-9, and 11 depend from claim 1 and necessarily include each limitation of claim 1, said dependent claims are also patentable over Kojima. For the reasons stated above, claim 11 is also independently patentable over Kojima as the limitation called out therein is not found in Kojima. Finally, new independent claims 23-24 also contain limitations not found in Kojima. Therefore, Applicant respectfully submits all currently pending claims are patentable over Kojima.

**Sasaki Does Not Anticipate Claims 1-5, 7-9, 11, and 23-24**

Examiner has rejected claims 1-4 and 7-11 as being anticipated by Sasaki. Applicant, by this Reply has amended claims 1 and 11, cancelled claim 10 and added new claims 23-24. Therefore, claims 1-9, 11, and 23-24 are currently pending.

Applicant respectfully submits that Examiner has improperly read Applicant's claims on the disclosure of Sasaki. With respect to amended claim 1, Sasaki does not disclose or teach a third electrode meeting all limitations of said third electrode as claimed by Applicant. Claim 1 calls for 'the third electrode connected to the second surface of the first PTC element and the first surface of the second PTC element and having a main portion and a sub-portion, the main portion being separated from the sub-portion by an element having a higher electrical resistance than the electrical resistance of the third electrode.'

Examiner is apparently reading both of electrodes 19 of Sasaki as the third electrode called for by Applicant's claim 1. Applicant suggests this is an improper reading of the claim on the reference. As can be seen from the discussion at col. 4, ln. 23 to col. 5, ln. 3, each of electrodes 19 is properly seen as a separate ohmic electrode, not as one of which being the main portion of the third electrode and the other of which being the sub portion of the third electrode. This reading is further supported by an analysis of the functioning of the Sasaki device. It can be seen that each of separate electrodes 19 either emits or collects electrons, depending upon the direction of flow of electric current through the disclosed device, which comports with the common understanding of

an electrode as used within a semiconductor device. Therefore, each electrode 19 of Sasaki is properly seen as a separate electrode.

This interpretation is further supported by an analysis of the manner in which Applicant's claimed invention functions. It is only the main portion of the third electrode that emits or collects electrons or holes. The sub-portion of the third electrode of the device of claim 1 does not collect or emit electrons or holes, as no electric current flows out of or into said sub portion. Accordingly, no sub portion of a third electrode, as claimed, is present in the Sasaki device.

This being the case, there is also no 'third electrode connected to the second surface of the PTC element and the first surface of the second PTC element', as claimed. Because these two limitations as claimed regarding the third electrode are absent from the Sasaki reference, claim 1 is not anticipated by Sasaki.

As claims 2-9 and claim 11 depend from claim 1 and necessarily include all limitations of claim 1, said dependent claims similarly are not anticipated by Sasaki.

The following claims depending from claim 1 have additional bases for being patentable over Sasaki. The limitations of claim 2 are not found in the Sasaki reference. Claim 2 requires 'the first and second electrodes' to 'comprise a main portion and a sub-portion.' For similar reasons as discussed above with respect to the third electrode, Sasaki does not disclose a first or second electrode with main and sub portion. Therefore, claim 2 is not anticipated by Sasaki for these additional reasons.

Claim 3 requires that the 'main portions of the first and second electrodes are physically *and electrically* separated from the sub portions, respectively.' (Emphasis added.) As already discussed, Sasaki does not even disclose a main and sub portion of first and second electrodes. Therefore, anticipation of this limitation of claim 3 is not possible and it is patentable over Sasaki for this reason in addition to its indirect dependence from claim 1. However, even if the Examiner persists in reading, for instance, separate electrodes 18 and 20 as main and sub portions of a first or second electrode, the limitation of claim 3 is not met. The main portion of each interior electrode of the Sasaki reference is physically separated from what may be called its sub portion. However, each main portion is not electrically separated from its sub portion. Rather they are electrically connected

through their common end termination. Therefore, this provides an additional grounds for the patentability of claim 3 over Sasaki.

The limitations of claim 4 are not present in or otherwise disclosed by the Sasaki reference. Claim 4 requires 'the first and second PTC elements are physically joined between the sub portion and the main portion of the third electrode.' This limitation is not met as there is no physical joining of the PTC elements between the sub portion and the main portion of the third electrode in Sasaki. Rather, Sasaki discloses ceramic PTC elements that are bonded through a glass insulating layer. They therefore are not physically joined at all due to the intermediate glass layer and the limitation of claim 4 is not met. This provides an additional grounds for the patentability of claim 4 over Sasaki.

Claim 7 requires the 'first end termination' to be 'in direct contact with the sub portions of the first and second electrodes and the main portion of the third electrode.' There is no end termination disclosed by Sasaki that satisfies these limitations. As no sub portions of the first second or third electrodes, as claimed are disclosed by Sasaki, the limitations of claim 7 can not be satisfied by Sasaki. Additionally, even if Examiner persists in reading Sasaki as disclosing main and sub portions of the required electrodes, one end termination of the Sasaki device is in contact with both the main and sub portions of both the first and second electrodes. The other end termination is in direct contact with both the main and sub portions of the third electrode. This provides and additional bases for the patentability of claim 7 over Sasaki. For these same reasons, the limitation of claim 8 is also not found in Sasaki thereby providing an additional basis for the patentability of claim 8 over Sasaki.

Furthermore, new claims 23-24 are not anticipated by Sasaki. Claim 23 is limited to 'only a first PTC element and a second PTC element.' Nowhere does Sasaki disclose no more than a first PTC element and a second PTC element. Therefore, this limitation of claim 23 is not found in Sasaki and claim 23 is patentable over the same.

Claim 24 requires the limitation 'the third electrode further being in electrical communication with the first electrode through the first PTC element and with the second electrode through the second PTC element.' In Sasaki, as discussed above, no third electrode is disclosed.

Accordingly, Applicant submits that claims 1-9, 11, and 23-24 are patentable over Sasaki.

**Claims 4-5 Are Patentable Over Sasaki In View of Hogge**

In the November 9, 2000 Office Action, the Examiner rejected claims 4-5 under 35 U.S.C. 103(a) as unpatentable over Sasaki in view of Hogge. In order for a combination of references to defeat patentability of an invention, the combination must teach or suggest each element as claimed by the applicant. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974), and MPEP 2143.03. Claims 4-5 each depend from claim 1. Examiner states Sasaki discloses all elements of claim 1 and Hogge suggests the further limitations as called out in claims 4-5.

However, as fully discussed in the preceding section of this Reply, Sasaki does not disclose, inter alia, a third electrode having a 'main portion and a sub portion', or a 'third electrode connected to the second surface of the PTC element and the first surface of the second PTC element.' Furthermore, these limitations of claim 1 not found in the Sasaki reference are similarly not found in Hogge. Therefore, the combination of Sasaki in view of Hogge fails to defeat patentability of claims 4-5 as claimed by Applicant.

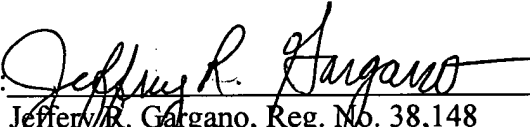
**CONCLUSION**

For the foregoing reasons, the Applicant respectfully submits Claims 1-9, 11, and 23-24 are in condition for allowance. Accordingly, withdrawal of the rejections and allowance of the Claims 1-9, 11, and 23-24 is respectfully requested.

The Commissioner is hereby authorized to post payment of any fees associated with this communication to Deposit Account No. 23-0280.

Respectfully submitted,

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**ATTACHMENT A**

1. (Amended) A surface-mountable electrical circuit protection device comprising:
  - a first PTC element having first and second surfaces, a first electrode attached to the first surface;
  - a second PTC element having first and second surfaces, a second electrode attached to the second surface;
  - a third electrode positioned between the first and second laminar PTC elements and having an electrical resistance, the third electrode connected to the second surface of the first PTC element and the first surface of the second PTC element and having a main portion and a sub-portion, the main portion being separated from the sub-portion by an element having a higher electrical resistance than the electrical resistance of the third electrode;
  - a first electrically conductive end termination wrapping around a first end of the device and electrically contacting the first and second electrodes; and
  - a second electrically conductive end termination wrapping around a second end of the device and electrically contacting the third electrode[.] ;

wherein an electrically insulating layer is deposited on the first and second electrodes between the first and second end termination.

11. (Amended) The device of claim 1[10], wherein the electrically insulating layer is in direct contact with the first PTC element between the main portion and the sub-portion of the first electrode and is in direct contact with the second PTC element between the main portion and the sub-portion of the second electrode.